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(54) Title: MULTIDIMENSIONAL NMR SPECTROSCOPY OF A HYPERPOLARIZED SAMPLE

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(57) Abstract: The present invention relates to methods of performing Nuclear Magnetic Resonance (NMR) spectroscopy adapted for a hyperpolarized sample. The methods comprise the steps of hyperpolarizing a sample using DNP, wherein at least a portion of the NMR active nuclei receives hyperpolarization; performing NMR spectroscopy on the sample with the use of sequences of rf-pulses, wherein the pulse sequences comprises at least two rf-pulses, either on the same nuclei or on different nuclei, and wherein the pulse sequence is adapted for a hyperpolarized sample; and analysing at least two of the NMR spectra to obtain a characterization of the sample, or to obtain an interim result to be used in the NMR spectroscopy step.